ence of an interferer (such as a Bluetooth device). Referring to **FIG. 24** for one-way transmission with ARQ, an exemplary retransmission technique (illustrated in **FIG. 24B**) is as follows:

[**0110**] 1. The master sends the slave a superpacket at **2401** including 100 packets with CRC at the end of each packet.

[**0111**] 2. The slave uses the CRC at **2402** to determine if the packets were received without error.

[**0112**] 3. The slave sends the master an ARQ packet that has a payload of 100 bits (see **2430**, **2431** in **FIG. 24B**). Each bit corresponds to a received packet. The bit is 1 if the packet was received with no error, and is zero if it was received in error. A CRC is appended at the end of the ARQ packet.

[**0113**] 4. If the master receives the ARQ packet correctly at **2404**, the master retransmits the requested packets (if any) to the slave (see **2405** in **FIG. 24B**). If the master does not receive the ARQ packet correctly at **2404** (as indicated, for example, by a failed CRC check), then

[**0114**] (a) the master sends the slave an ARQ packet of size 100 μsec. (see **2410** in **FIG. 24B**) asking for the slave's ARQ packet.

[**0115**] (b) the master then listens at **2404** for the slave's ARQ packet.

[**0116**] (c) Steps (a) and (b) are repeated by the master until he receives at **2404** the slave's ARQ packet (sent at **2420** in **FIG. 24B**) and retransmits the requested packets, if any (see **2408**), at **2405**, or until the T_2 time slot ends at **2406**, at which time mode 1 communications begin.

[**0117**] 5. Steps 2-4 are repeated until all the packets are received by the slave correctly (see **2408**) or the T_2 time slot ends.

[**0118**] 6. If the T_2 time slot does not end during step 4 or step 5 (see **2409**), the master sends new packets to the slave.

[**0119**] If the master finishes sending all its packets before the T_2 time slot ends, it can go to mode 1 and communicate with other Bluetooth devices. For example, if MPEG 2 of rate 18 Mbps is being transmitted, six frames (250 ms of video) would require 204.5 ms at the rate of 22 Mbps. If T_1+T_2=250 ms, and 10 ms are used for retransmission requests and retransmissions, and if 7.5 ms is used for PLS, this would leave the master 28 ms for mode 1 Bluetooth communications.

[**0120**] Retransmissions for two-way communications (See **FIG. 24A**) can be accomplished similarly to the above-described one-way communications. The slave device's ARQ requests maybe piggybacked onto the slave data packets, or independent ARQ packets can be utilized.

[**0121**] **FIG. 24C** diagrammatically illustrates pertinent portions of exemplary embodiments of a mode 3 transceiver capable of implementing the exemplary retransmission technique described above and illustrated in **FIG. 24B**. In **FIG. 24C**, the incoming superpacket data is applied to a CRC decoder **242** which performs a CRC check for each packet of the superpacket. For a given packet, the CRC decoder **242** can shift a bit into the register **243**, for example a bit value of 1 if the CRC for the packet checked correctly, and a bit value of 0 if the CRC for the packet did not check correctly. Thus, the register **243** will be loaded with a bit value for each packet of the superpacket. The bit values contained in the register **243** are input to logic **244** which determines whether or not the CRC of every received packet checked correctly. If so, the logic output **248** signals a buffer **241**, into which the incoming superpacket data has been loaded, that the superpacket data can be passed on to a higher layer. On the other hand, if the logic **244** determines that the CRC of one or more of the received packets did not check correctly, then the logic output **248** signals the buffer **241** to hold the superpacket data.

[**0122**] The contents of register **243** are also provided to an ARQ generator **245** which uses the register contents to fill the payload of an outgoing ARQ packet. When a superpacket including retransmitted packets is received, the retransmitted packets are buffered into their appropriate superpacket locations in buffer **241**, and the CRC decoder **242** performs a CRC check for each retransmitted packet, providing the CRC results to the register **243**.

[**0123**] An ARQ receiver **246** receives incoming ARQ packets and responds thereto either by prompting the ARQ generator **245** to send an appropriate ARQ packet, or by selecting requested packets of a previously buffered (see **247**) outgoing superpacket for retransmission to the other side.

[**0124**] Point-to-multipoint communications can be achieved by time division multiplexing between various slaves. Each time slot for each slave can be preceded by a PLS slot between the master and the concerned slave.

[**0125**] In some embodiments, each 200 μsec. length packet in **FIG. 24** includes data bits (payload) and a CRC of length 32 bits. The CRC is a 32-bit sequence generated, for example, using the following polynomial $D^{32}+D^{26}+D^{23}+D^{22}+D^{16}+D^{12}+D^{11}+D^{10}+D^{8}+D^{7}+D^{5}+D^{4}+D^{2}+1$. This exemplary packet format is shown in **FIG. 25**.

[**0126**] **FIG. 25A** illustrates an exemplary ARQ packet format according to the invention. The ARQ packet format of **FIG. 25A** is generally similar to the packet format shown in **FIG. 25**, and includes the training sequence of **FIG. 26**. The payload of the **FIG. 25A** packet is protected by a repetition code. The size of the **FIG. 25A** packet can be specified in its header, or can be determined by the master based on: the number of packets in the superpacket sent by the master multiplied by the repetition code rate; the number of CRC bits; and the number of training bits.

[**0127**] Several of the packets in **FIG. 24**, the number of which can be agreed upon in the initial handshake, are preceded by a training sequence for acquisition of timing, automatic gain control and packet timing. Typically 10 packets are preceded by the training sequence. **FIG. 26** shows an exemplary format of the training sequence. **FIG. 27** illustrates diagrammatically a portion of the above-described exemplary slot format of period T_2 in mode 3, including the training sequence (see also **FIG. 26**) and the CRC.

[**0128**] The preamble of the **FIG. 26** training sequence includes the pattern (1+j)* 1, −1, 1, −1, 1, −1, 1 −1, 1, −1,